THE
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PHOTOGRAPHIC
ENLARGER.
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NOTICES.

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NOTES.

A Happy New Year to All.

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Southsea Amateur Photographic Exhibition.—On the 30th and 31st inst. the eleventh annual exhibition of this society will be held at their rooms, 5, Pembroke Road, Portsmouth. Full particulars may be obtained from Mr. F. J. Mortimer, Cornwall House, Ordnance Row, Portsea. All exhibits must be sent in on or before the 21st inst.

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A Revolving Light Slide.—For a long time past Mr. E. H. Wilkie has been experimenting in order to make a mechanical slide of (say) the Statue of Liberty, a lighthouse, or other eminence, showing the effect of a revolving light. We learn that he has at last succeeded in making the rays to appear to have a horizontal motion, so that they seem to travel across the front of the picture, and then round the back, leaving the statue or lighthouse standing out in relief. This mechanical motion has, we understand, never before been attempted in connection with lantern slide effects.

Lantern Operators.—Mr. H. L. Toms, of 78, Queen Victoria Street, London, E.C., has a large staff of efficient lantern operators, and is always prepared at short notice to exhibit for lecturers, societies, institutions, etc.

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Madagascar.—One of the finest lectures on Madagascar was given lately at Shrewsbury by the Rev. A. Chiswell. The rev. gentleman having spent many years there in connection with missionary work was thus enabled to give an insight into life and character at Madagascar, to which an ordinary visitor would be unable to obtain access, the lecture in question being, to a large extent, written from diary notes.

◆ ◆ ◆

All Subjects Taught with the Lantern.—It is a difficult matter to find any subject nowadays which cannot be well placed before a general audience by means of lantern slides. The treatment of one's finger nails, although a subject of importance, is not often met with in the form of a lecture, yet at a recent lecture given at Haywards Heath, a lantern lecture on the structure of the nails, with hints as to their treatment, was generally voted by the audience as being one which created a great deal of instructive information.

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History of the Prayer Book.—One would hardly think that the foregoing could possibly form the subject of a lantern lecture, yet we learn that a few days ago a successful lantern lecture on this subject was given by M. E. F. Jeffries, at Husbands, Bosworth. Our correspondent does not enlighten us as to the nature of the lantern illustrations, although he states that they were excellent.

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Half a Mile of "Bull Fight" Film.—It is sometimes very amusing to read how certain people word their advertisements; for instance, we read in the advertisement columns of a paper published in the Midlands, that a dioramic lecturer gives as his subject for an entertainment "Sunny Spain, with glimpses of Africa," and that during the lecture a cinematographic film of half a mile in length, illustrating a bull fight, is to be exhibited. A bull fight film of half a mile long (*i.e.*, 2,640 feet) is evidently no mean affair, especially when in looking over the lists of the recognised makers of such we can only find 11 bull fight films each of 50 feet in length—half a mile would represent about 53 such films. It might be interesting to determine how long this would take to pass the condenser, what size of room such a film would carpet, and the number of acres of pictures projected on the 30 feet screen mentioned in the advertisement spoken of.

◆ ◆ ◆

Acetylene Explosion.—We have from time to time warned users of acetylene gas against opening an exhausted generator in the presence of a flame, but such advice unfortunately is not always acted upon, possibly because familiarity with a subject breeds contempt. We have unfortunately to chronicle the death of Mr. Burlingham, of Kings Lynn, a young man of 32, who, in the course of some experiments with this gas, was instantly killed by an explosion, and a boy who was standing near was rendered unconscious. Such accidents although very sad, in no way prove that acetylene is any more dangerous than ordinary house gas, and it is to be expected that anyone using acetylene will at least take the same precautions as they would with ordinary house gas. Experience has taught that one must not walk about a house with a candle looking for a leak when they smell gas strongly. We will once again emphasise the fact that it is dangerous to open the generating chamber of an acetylene apparatus in close proximity to a naked light.

◆ ◆ ◆

Mr. H. G. Madan.—Our readers will be sorry to hear that Mr. Madan, the writer of the useful article in our last Annual on the subject of "Lecture demonstrations of the laws of polarised light," has recently met with a serious accident whilst walking in Gloucester Docks, by which his right leg and arm were fractured. Although the injuries are of a serious nature, we hope that Mr. Madan will have a speedy recovery, a hope in which we feel confident our readers will join.

◆ ◆ ◆

"First Aid" by means of the Lantern.—A series of lantern lectures on health are being given at the West-End by Dr. Hodson, at which various methods of bandaging different parts of the body are graphically described by means of lantern slides.

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Welsh Societies.—Several Welsh mutual improvement societies have lately taken up the lantern as a means of imparting useful information to their members. Two such lectures—"Moths and butterflies," and "Wonders and romance of insect life"—have lately been making their influence felt, and many of the societies are availing themselves of subjects of a similar scientific interest.

Roller Curtain Effect.

THE principle of the roller curtain effect, although simple enough to experienced lanternists, seems to be somewhat of a mystery to the tyro. As the ranks of lanternists are continually being recruited from the latter, and as we have quite lately received several letters bearing upon this subject from beginners, we will hark back to the subject so as to make the principle understood. Several of the letters spoken of are evidently from those who possess a single lantern. One letter before us says: "To bring an opaque curtain over a picture on the screen is easy enough by interposing close to the picture a sheet of anything that is opaque, but to bring a coloured curtain over a picture without showing the picture itself seems to be somewhat of a mystery. I lately saw such done and there was not seen through the coloured curtain the slightest trace of any portions of the picture itself. Why was this and how was it done?"

With a single lantern it is simple enough to bring an opaque curtain or shutter over a picture by sliding up over the picture from below a thin sheet of any opaque material, a convenient carrier for this purpose being some time ago devised by Mr. Davenport, the secretary to the Society of Arts, and is sold by Mr. J. H. Steward, of the Strand. To give the effect asked about with a single lantern

is impossible

for the simple reason that if a transparent or coloured curtain slide were so used the picture itself would appear on the screen at one and the same time, much after the same style of placing two pictures one in front of the other in the lantern stage.

To obtain the effect of a coloured curtain rolling down over a picture it is necessary that two lanterns be employed. Let both discs coincide upon the screen, and in the stage of one place a view and in the other stage a curtain slide. If both illuminants in the lanterns are up, a blurred mass consisting of picture and curtain will be seen, but if one lantern be shut off, the picture from the other will appear plainly.

If a piece of cardboard be placed immediately in front of the curtain slide so as to exclude the light from passing through, say one half of this slide, so will just the covered portion be cut off from the screen, allowing the space of the same size occupied by the other picture to be seen distinctly, whereas the remaining portions will consist of the blurred mass of part curtain and part picture. If now in front of the view slide in the other lantern a piece of cardboard be slipped at the opposite side of the lantern to that which was placed in front of the curtain slide, a corresponding portion of the picture will be shut off the screen, and we have one half of the projected disc containing a picture and the other half the curtain. By slightly adjusting the pieces of cardboard it will be apparent that each picture can be exactly cut off in equal portions. Supposing it possible to slide the two cards along at exactly the same rate—the one to cover more of the picture, and the other to reveal more of the curtain slide—it will be evident that the curtain slide will appear to be unrolled sideways over the picture.

Such, then, is the principle; but in practice this covering and uncovering takes place at the top of one slide and the bottom of the other.

With bi-unial lanterns all that is necessary is to make a metal strip sufficiently wide to cover the stage opening, and to make it to slide up and down close to the pictures. The length of this strip must be such that it will cut off one end of the one slide at the same time that the other ends of the strip is uncovering and revealing the other picture, the edges of the strip being so cut that only a fine line of demarcation is seen on the screen dividing the two pictures. By means of a roller curtain so fitted many pleasant changes can be obtained by giving the appearance of one picture rolling up or down over the other.

Flash Light Dangers.

By EDGAR CLIFTON.

THE magnesium flash light is no longer the toy of the novice; it has become a recognised factor in the every-day practice of the skilled photographer, and a few words of caution as to the methods to be followed in handling the lamps and powders now commonly used may not be unseasonable. Under the generic term of flash light are classed the light produced by blowing or otherwise projecting powdered magnesium through a spirit or gas flame, that produced by the ignition of an explosive compound such as magnesium and chlorate of potash, and that obtained by igniting sheets of paper or similar material carrying in their substance the necessary oxygen-giving salt and coated on the surface with the metal. It may here be noted that in most—if not all—of these methods powdered aluminium may be employed instead of magnesium, and that the following remarks will apply equally to both metals.

The most usual form of flash light is that in which the powder (pure metallic magnesium) is blown through a gas or spirit flame. Here, on the face of it, we might say, is absolute safety; pure magnesium is not explosive, and hence may be used with impunity. This is, however, a dangerous fallacy; flour is non-explosive, yet many a mill has been wrecked by the explosion of a mixture of flour and air, and magnesium under similar circumstances becomes an explosive of no mean power.

The real danger in lamps of this type lies in the liability to "suck back" the flame when the pressure on the ball is released, while there is a quantity of the lighter particles of the metal in a state of temporary suspension in the reservoir. All the conditions for a miniature bomb explosion are here present, and the result has been in some cases more disastrous than if the affairs had been planned with malice aforethought. To the writer's knowledge the interior of a room has been wrecked and the windows blown out through the explosion of an innocent-looking lamp little larger than an egg, the operator fortunately escaping with a severely burned hand; and as

a minor accident

we can instance the bursting of a rubber ball in the hand, the flame from the lamp having traversed nearly 2 feet of rubber tubing before firing the loose powder which had been drawn into the ball during previous exposures.

The moral of this is that the simplest lamp is the safest. That a simple bent tube carrying the requisite quantity of powder, which is at once blown into the flame and consumed, is the most effective and the least risky. If more elaborate lamps of the magazine type are used, especially those with a large reservoir for the powder, there should be an efficient back pressure valve, which should prevent the ball from refilling with air through the same channel by which it has escaped. Several lamps have been introduced in which the magnesium powder has been mechanically projected into the flame, but in these there has always been a tendency to throw the powder in a body, and thus to cause imperfect combustion.

It is, however, in the use of explosive mixtures composed of magnesium or aluminium mingled with chlorate of potash, or its equivalent, that the greatest danger lies. Some of these require to be mixed immediately before use, as if kept they are liable to spontaneous combustion, while others will keep without deterioration or danger for a considerable time. As a general rule the danger in using them is the same as when employing gunpowder or dynamite, viz., the general liability to accidental explosion. This varies according to the composition of the powder; with some the slightest spark is sufficient to cause ignition, while with others a heated wire or a detonator of some sort is required.

It is perhaps hardly necessary to point out the advisability of packing up the requisite quantity for each exposure in a separate package and of, as far as possible, isolating these packages from each other, thus preventing the recurrence of such an accident as caused serious injury if not death to the operators some years ago in America. In this case a professional photographer and his assistants were engaged in photographing at the top of a high building, using an explosive flash light mixture, which was kept in an open box and ladled out as required; a stray spark reached this stock, and, as might naturally have been expected,

a violent explosion

ensued, coping stones and other portions of the building being detached and hurled down into the street below.

It may seem unnecessary to repeat the caution against using any explosive powder in a lamp with a more or less closed reservoir, but a recent accident which has cost the experimenter dearly proves that this danger is not yet appreciated by many at its true value. Nothing but pure metallic magnesium must be put into an ordinary flash lamp. Explosive powders must be fired upon a metallic plate or dish, and this should be firmly fastened to its support or the shock of discharging may throw it down carrying with it a portion of red hot ash or other residue and thus igniting curtains or furniture.

Flash sheets, consisting of a film of collodion carrying in its substance the necessary quantity of magnesuim, or sheets of paper impregnated with chlorate of potash and covered with magnesium, would seem to present some advantages; at least, they cannot without considerable trouble be put into a lamp. The only danger attaching to their use is common to all flash lights, viz., the production of a large and intensely hot flame which may reach and ignite drapery, scenery, or other inflammable articles if carelessly produced in their close proximity.

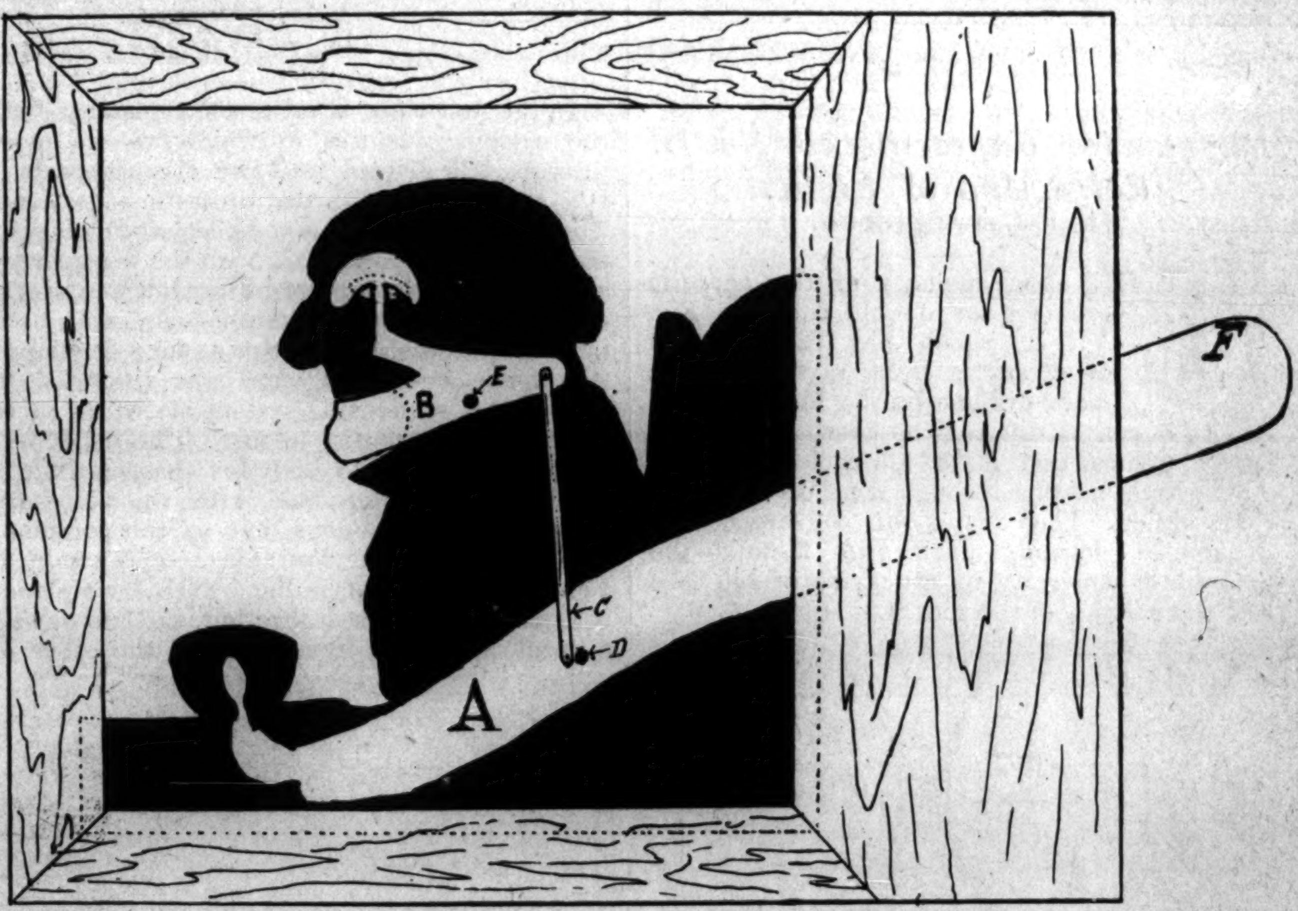
In conclusion, the writer wishes to disclaim any wish to assume an alarmist attitude, for he is an admirer and frequent user of flash light in its many forms, which he has worked both for pleasure and profit, and he feels that a timely warning of the acknowledged dangers which attend their use may avert an accident, slight or serious, and no one is the better for even a blistered hand. On some future occasion perhaps the more pleasing task of dealing with the merits and capabilities of the various systems may be undertaken.

A Comical Shadowgram for the Optical Lantern.

By **THEODORE BROWN.**

SLIDES known as comic are to be obtained in great quantities from those who deal in lantern apparatus, and we can have selections of transfer slides, photographic reproductions, hand-paintings, and of late, certain slides of the silhouette class, some of the latter being capable of affording endless amusement. I therefore propose to give a few particulars whereby those readers with a mechanical turn of mind may produce a shadow slide of life-like effect.

On examining the drawing it will be evident that when the arm A is pressed at point F the old gentleman lifts the spoon from the basin of broth, whilst the connecting rod C, which is pivoted to the jawbone B, causes the mouth to open to receive the spoon, and, at the same time, the eye to close. The natural effect may only be realised as it is projected on the lantern screen.



Readers who desire to make this simple but effective shadowgram should attend to the following particulars:—The framework is, of course, made of wood (mahogany); the whole may be encased in glass, if thought necessary; the black portion of the diagram should be made of tin or stout cardboard; the dotted lines indicate the outline of the figure before A and B is attached; the three pieces A, B, and C should be cut out of tin, A is pivoted to the base at D, and the portion B is pivoted to the base at E, and the rod C is also pivoted to A and B, but working independently of the base. It is very important that the different distances of the points at which the pivoting is done should be noted, as the action of the arm, mouth and eye is regulated from these points.

By giving vibrations to the arm at F the effect of eating will be produced, and the time between each spoonful of broth is left to the discretion of the operator at the lantern. The above diagram is drawn full size, and if an exact pattern is taken from this the reader cannot fail to secure for his audience a very amusing and satisfactory addition to his entertainment, and a comic slide which should become as popular as the well-known "Man eating rats in bed."

Physics for Lanternists.—No. II. *Refraction of Light.*

By F. J. SCRIMGEOUR.

THE chief member of the opposite group is the double concave, Fig. VI., A, which has the property of diverging light rays. This is made evident by the former device of considering it to be composed of two prisms, and it is at once clear that rays passing through must diverge from each other. The degree of convergence or divergence depends upon two factors—the amount of convexity or concavity of the lens and the position of the source of light.

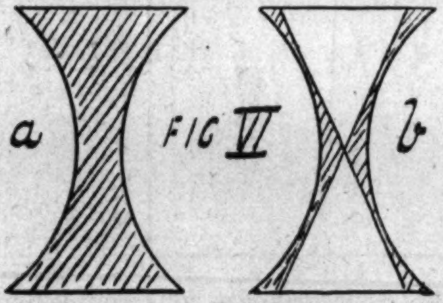


FIG VI

Before proceeding to study the actual optical system of the lantern it is necessary to know a few facts concerning focus. The principal focus of a lens is the point to which all rays of light parallel to the principal axis converge. For example, in Fig. VII. we have a double convex lens and a stream of light rays all parallel to the principal axis. These converge and meet at F, which is therefore the principal focus. The focal length of a lens is the distance between F and O, so that we know exactly what is meant when we are told that the focus or focal length of the lens of a certain lantern is 6 inches; it means that F O is a distance of 6 inches.

Again we can reverse the order of things and say that light radiated from a point at F will, when it passes through the lens, become a parallel beam of light having a constant diameter. We shall see how important is this last statement when we survey the system of lenses in optical lantern work.

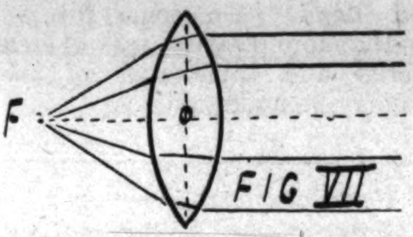


FIG VII

In the first place it is well to remember that the system of lenses in which we are most interested is divided into two distinct parts—the condensing and the projecting portions. The object of the first is to collect as much light as possible and pass it through the transparent slide. In the first lanterns produced a single double convex lens or "bull's-eye" was used for this purpose, but as the science developed this single condensing lens was discarded in favour of a condensing system of two or more lenses. One essential feature of the condenser is shortness of focus, and this characteristic is found to be incompatible with the necessary diameter in a single lens, but by the combination of two lenses the desirable object is attained. For instance, if, as in Fig. VIII., two plano-convex lenses be used together, the one having a focal length of 10 inches and the other of 6 inches, the resulting focus of the system will be 3¾ inches.

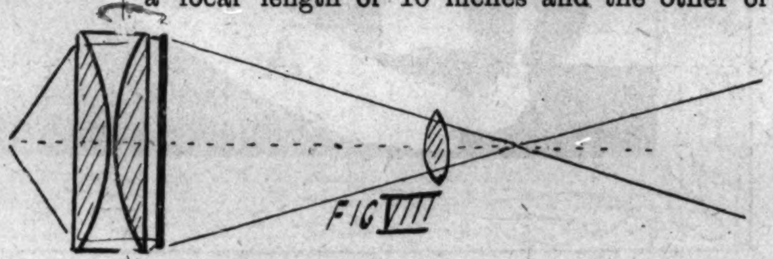


FIG VIII

This double system is the one in most general use at the present time, but the triple condenser also has its devotees—and with good reason.

The source of light—which, theoretically, we must consider as a mere point—is now placed in a position a little further away from the centre of the condenser than its solar focus.

The rays from this luminous point pass, as we see in Fig. VIII., through the glasses. This causes the rays to converge and make for the projecting lens. But meanwhile a slide has been placed close to the condenser, and through it the light must pass in its onward course. It is the duty of the front lens to project the image of the slide upon the screen, magnify it, and also keep the resulting image "flat"—all in focus at one time; this last is a most important property of the lens, and is the chief differentiating point between a good and a bad objective. Although in Fig. VIII. I have made the objective a single double convex lens, yet a projecting "system" is here also more common. A portrait combination is the most usual because of the flatness of disc which it produces, but I have seen single lenses which could vie with it in this respect. My own favourite for long distance work is a very well made double convex lens, and with it I get remarkable coincidence of central and marginal sharpness. What then are the essentials in good optical lantern projection? First, correct placing of the luminous body so as to use the collecting lens to the best possible advantage. Second, a condensing lens which will bend the rays so that none will be lost, but all will be sent through the slide into the front lens or objective. Third, a front lens which will project and magnify the illuminated image and bring it all to a simultaneous focus upon the screen.

In this paper I have given the merest rudiments of lantern optics, so that those who are joining the brotherhood this winter may clean their condensers and screw in their objectives with rather more than the usual optical intelligence.

THE RADIATION OF LIGHT.

In our study of light we have only dealt with its refraction; radiation yet remains to be considered. The sole reason why we see the picture on the sheet is because the light is thrown back to us by radiation. If the lantern be taken into the open air and the slide projected into the vacant atmosphere, we shall look in vain for any magnified image. True, we shall see the beam of light proceeding outwards, but even that will be due to the radiation of rays from the particles of dust floating in the air. This can be proved by interposing in the light's path a glass jar from which all air has been extracted by means of an air pump. Then the light will appear as a luminous stream on both sides of the jar, but will be quite invisible where it passes through the vacuum. Every particle of dust when radiating is diverting some of the light from its proper path, and therefore the more prominent the beam of light between the lens and the screen the less light must be reaching the sheet, and consequently so much the less brighter must be the disc. I think that the very opposite of this is a popular fallacy with country audiences.

Then I have already said that the visible picture is entirely due to radiation. This is true, whether the audience is on the same side of the sheet as the lantern or on the opposite side. As in the former case the amount of radiation is greater, so the picture is brighter, if we consider the amount of light projected as a constant factor.

Every substance it is possible to think of has an inherent power to radiate light, and tables exist which show in figures the degree to which many substances possess this property. Black material, because it takes in light without giving out any again, is said to be "dark." If instead of white linen we stretch a dull black cloth between the framework of our screen, what will be the visible result? When we project the image of a landscape upon this surface will the white beams of the sky light up the black portion upon which they fall? Certainly not! the white of the sky, the green of the trees and grass, and the red and orange of the distant sunset will all be

entirely absorbed.

In the place of the black let us erect a sheet of grey cloth. What effect will we now have? Some of the light will be absorbed and some radiated back so that a faint image will be visible. When we return to the ordinary white screen we find that *most* of the light is radiated, and yet not all; for such a desideratum is only obtained when the screen is absolutely opaque. Opaque screens are all very well as permanent fixtures, but their bulk and weight make them unsuitable for touring purposes. It is unfortunate that lightness and portability are incompatible with opacity. There are various methods by which we can test a linen sheet for its powers of reflection. Its thickness is a good guide, but perhaps the best plan is to pass it through an actual trial. Then when the lantern is full on go behind the screen and see how bright the picture appears from that position. All the light which is visible to you is lost light, and by exactly its amount is the image in front less bright than it might be. Therefore, any device which will decrease the brightness of the disc as seen from behind, will increase the amount of radiation from the surface in front. On the other hand, if in any way we can cause the back view to show more light—keeping the light in lantern constant—the position of the audience in front will become less advantageous. This gives us the reason for the old custom of wetting the sheet when the lantern had such a strong connection with magic that its mysteries had to be concealed from the common crowd. In some halls where lantern exhibitions are a weekly occurrence the wall above the platform is kept as a permanent "screen" by a thick coating of whitewash. There can be no doubt as to its opacity, but unfortunately this advantage carries with it a distinct disadvantage—the wall can't be "tilted" into a right angle with the lantern rays. When the apparatus can be placed in a suitable gallery this disadvantage is certainly obviated, but too frequently in such halls there is no convenient gallery, and the source of light is placed near the floor. What is the result? The entire picture cannot possibly be focused at one time, and square views become hideous distortions.

But something more than comparative opacity is necessary, and that something is *cleanliness*. Words would fail if I tried to describe the filthy rags which are sometimes termed "lantern sheets!"

In closing the subject of radiation, I must refer to the surface of the screen. Whether it be made of linen, cotton, paper, whitewash, or paint, it must be dull. We want to radiate the light, not to reflect it.

Hand-Camera Experiences in East London.

By J. W. M.

I had intended to illustrate this article with photographs taken by myself when on this expedition, but on second thoughts have decided that however interesting they might be, from our point of view, it would not be wise to do so, as to my mind it is always well to exercise extreme caution in these matters.

I THINK that I may fairly claim to have had a somewhat motley experience during the few years that I have been a lanternist and photographer, more so if I may include such items as Post-mortem photographs, Criminal portraits (copies) for police distribution, Photographing bomb explosions (or rather the results of them) for Scotland Yard, etc., etc. But I think that the most enjoyable and risky experience was one that took place on a Sunday afternoon in the East End of London—on a Sunday afternoon because that was the only time that pictures uch as I desired could be obtained. I was ngaged at the time by a church society for the lief of the outcast, and also lecturing at lantern meetings for the same society, and wishing to obtain some real "life" pictures for the truth of which I could personally vouch, I consulted a friend of mine who could advise me as to the way to go to work, but he, having been "through the mill" himself, kindly offered to come with me and pilot me through the district, which offer I gladly accepted, and which was extremely useful later on.

We started from the City early in the afternoon, armed with an "Artist" hand-camera, with dark slides (no changing mechanism for me, thank you!), and made our way towards the haunts of the "great unwashed," situate in or about Commercial Road, E. and Whitechapel. Amidst a drizzling rain we thus began our lookout for the objects of our expedition.

Passing the Tower of London we were regarded with great suspicion by a Lascar (of the walking stick fraternity), who evidently thought that we were dynamitards only waiting for an opportunity to **assassinate him**; he led us such queer antics that we could only get a "back view" of him as he doubled on his tracks across the road. Indeed, in most cases it was almost impossible to get a really good view of any of the subjects that I wished to obtain owing to the sharp look out that these men keep against observation. We were mistaken later on for police officers obtaining portraits of suspected persons.

Turning up the Minories and along Whitechapel, I wished to have a shot at the famous "Petticoat Lane," at which place I was well known in connection with the before mentioned society, but being the afternoon the place was well nigh deserted, so I forebore from using one of my precious plates. Proceeding along Commercial Road, I espied a poor old fellow in a white jacket, seemingly drunk, but on closer inspection he proved to be absolutely "done up." I succeeded in obtaining two very passable pictures of him as he leaned up against the houses every few yards. Despite the rain which had by this time begun to fall sharply we kept straight on our way.

Spotting two "out o' works" along the road, we crossed over to the opposite side to them, passed hurriedly ahead, recrossed, and stopped in a doorway, under the pretence of photographing some building works going on opposite, towards which my companion pointed as the men came into view. We succeeded by this means in obtaining a fair view of these two men, on whose faces despair, starvation and sadness seemed stamped indelibly, and who were marching along to "God only knows where!"

We moved forward, and descrying another specimen further on, we watched him for a short time, when, to our mingled surprise and disgust, we actually saw him pause, walk into the middle of the roadway, stoop down and pick up a rotten pear, which I suppose had either fallen or had been thrown from a streetmonger's barrow, and begin to eat ravenously, cautiously looking round to see if he was observed (which of course he was not?). I was so taken aback by this action of his that I forgot what an excellent picture he would have made, but recovering myself a few moments later I "snapshotted" him whilst taking a bite at his toothsome morsel. I do not believe that I shall ever forget this scene until my latest day.

On we went taking various pictures of tramps, etc., including a group of two Lascars dividing their spoil. We passed down by the side of Regent's Canal Docks, toward Medland Street; here I was surprised to see a long line of men leaning against the

railings of the docks

amusing themselves while waiting in their own peculiar way, *i.e.*, bending a piece of wire into fantastic shapes, counting and examining odd buttons, talking and arguing, etc. I turned to my friend and enquired the meaning of this, and I found that we were close in the precincts of a M——— Hall. We surreptiously obtained a snapshot of the men waiting, knocked at the door of the hall, and by the judicious administration of a little "Palm oil" succeeded in obtaining admittance.

I cannot adequately describe what I saw and felt inside. The whole length of the hall was covered by forms and seats with a pathway through, disinfectant powder covered the floor (to my mind not wholly unnecessary), and a small platform was placed at one end. Texts and pictures hung about the hall, giving the place a bright appearance. It appears that the long line of miserable, half-starved beings outside were waiting the doors to be opened for their admittance; when, on the payment of a very small sum, they were each served out with a mug of coffee and a lump of bread; they were also entitled to a chair or a fraction of a form, upon which they slept (?) through the night. I afterwards discovered the use of the platform. It appears that among these poor fellows there are some who possess a little more money than their less favoured brothers and desire a full "lay-out" on the floor for the night; these are termed among their associates "The Aristocrats," and are entitled, on payment of a very slight extra fee, to occupy the platform for this purpose.

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On my stopping to arrange in my finder the picture which I desired to take, I was startled by an exclamation from my companion, and on looking up found that some half-dozen men had started across the road with the loudly expressed intimation that they weren't "going to be took anyhow," and that if I didn't want "a punch in the 'ed" I had better "clear out," this of course mixed up with a good deal of slang which was quite unintelligible to me. My guide, however, succeeded in quieting them by promising not to allow the picture to be published in any of the papers. The reason, as one poor fellow stepped aside to tell me, being, that he and most of the others had seen better days, and did not want their friends to know what had befallen them. I investigated some of their "cases" as far as I was able and distributed a few relief tickets, leaving them then to go on struggling in the

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strong connection with magic that its mysteries had to be concealed from the common crowd. In some halls where lantern exhibitions are a weekly occurrence the wall above the platform is kept as a permanent "screen" by a thick coating of whitewash. There can be no doubt as to its opacity, but unfortunately this advantage carries with it a distinct disadvantage—the wall can't be "tilted" into a right angle with the lantern rays. When the apparatus can be placed in a suitable gallery this disadvantage is certainly obviated, but too frequently in such halls there is no convenient gallery, and the source of light is placed near the floor. What is the result? The entire picture cannot possibly be focused at one time, and square views become hideous distortions.

But something more than comparative opacity is necessary, and that something is *cleanliness.* Words would fail if I tried to describe the filthy rags which are sometimes termed "lantern sheets!"

In closing the subject of radiation, I must refer to the surface of the screen. Whether it be made of linen, cotton, paper, whitewash, or paint, it must be dull. We want to radiate the light, not to reflect it.

Hand-Camera Experiences in East London.

By J. W. M.

I had intended to illustrate this article with photographs taken by myself when on this expedition, but on second thoughts have decided that however interesting they might be, from our point of view, it would not be wise to do so, as to my mind it is always well to exercise extreme caution in these matters.

I THINK that I may fairly claim to have had a somewhat motley experience during the few years that I have been a lanternist and photographer, more so if I may include such items as Post-mortem photographs, Criminal portraits (copies) for police distribution, Photographing bomb explosions (or rather the results of them) for Scotland Yard, etc., etc. But I think that the most enjoyable and risky experience was one that took place on a Sunday afternoon in the East End of London—on a Sunday afternoon because that was the only time that pictures uch as I desired could be obtained. I was ngaged at the time by a church society for the lief of the outcast, and also lecturing at lantern meetings for the same society, and wishing to obtain some real "life" pictures for the truth of which I could personally vouch, I consulted a friend of mine who could advise me as to the way to go to work, but he, having been "through the mill" himself, kindly offered to come with me and pilot me through the district, which offer I gladly accepted, and which was extremely useful later on.

We started from the City early in the afternoon, armed with an "Artist" hand-camera, with dark slides (no changing mechanism for me, thank you!), and made our way towards the haunts of the "great unwashed," situate in or about Commercial Road, E. and Whitechapel. Amidst a drizzling rain we thus began our look-out for the objects of our expedition.

Passing the Tower of London we were regarded with great suspicion by a Lascar (of the walking stick fraternity), who evidently thought that we were dynamitards only waiting for an opportunity to **assassinate him;** he led us such queer antics that we could only get a "back view" of him as he doubled on his tracks across the road. Indeed, in most cases it was almost impossible to get a really good view of any of the subjects that I wished to obtain owing to the sharp look out that these men keep against observation. We were mistaken later on for police officers obtaining portraits of suspected persons.

Turning up the Minories and along Whitechapel, I wished to have a shot at the famous "Petticoat Lane," at which place I was well known in connection with the before mentioned society, but being the afternoon the place was well nigh deserted, so I forebore from using one of my precious plates. Proceeding along Commercial Road, I espied a poor old fellow in a white jacket, seemingly drunk, but on closer inspection he proved to be absolutely "done up." I succeeded in obtaining two very passable pictures of him as he leaned up against the houses every few yards. Despite the rain which had by this time begun to fall sharply we kept straight on our way.

Spotting two "out o' works" along the road, we crossed over to the opposite side to them, passed hurriedly ahead, recrossed, and stopped in a doorway, under the pretence of photographing some building works going on opposite, towards which my companion pointed as the men came into view. We succeeded by this means in obtaining a fair view of these two men, on whose faces despair, starvation and sadness seemed stamped indelibly, and who were marching along to "God only knows where!"

We moved forward, and descrying another specimen further on, we watched him for a short time, when, to our mingled surprise and disgust, we actually saw him pause, walk into the middle of the roadway, stoop down and pick up a rotten pear, which I suppose had either fallen or had been thrown from a streetmonger's barrow, and begin to eat ravenously, cautiously looking round to see if he was observed (which of course he was not?). I was so taken aback by this action of his that I forgot what an excellent picture he would have made, but recovering myself a few moments later I "snapshotted" him whilst taking a bite at his toothsome morsel. I do not believe that I shall ever forget this scene until my latest day.

On we went taking various pictures of tramps, etc., including a group of two Lascars dividing their spoil. We passed down by the side of Regent's Canal Docks, toward Medland Street; here I was surprised to see a long line of men leaning against the

railings of the docks

amusing themselves while waiting in their own peculiar way, *i.e.*, bending a piece of wire into fantastic shapes, counting and examining odd buttons, talking and arguing, etc. I turned to my friend and enquired the meaning of this, and I found that we were close in the precincts of a M——— Hall. We surreptiously obtained a snapshot of the men waiting, knocked at the door of the hall, and by the judicious administration of a little "Palm oil" succeeded in obtaining admittance.

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Optical and Mechanical Effects for the Lantern.—No. V.

By EDMUND H. WILKIE.

(Late Royal Polytechnic Institution).

AT the conclusion of our paper last month we left Gabriel Grubb descending through the ground, having been forcibly abducted by the goblin, and transported much against his will to regions below the earth's crust. When their descent came to a close we found them in a gloomy cave surrounded by a number of goblins of fantastic appearance, whose facial expressions were the reverse of respectful, while the king of the goblins was seated on a kind of rocky throne in the centre of the view.

After a short dialogue, which will be found in any complete edition of the *Pickwick Papers*, the chief goblin exclaimed "It's very cold to-night, a glass of something warm here," and the picture dissolving, we next saw him drinking liquid fire from a large goblet, while Gabriel gazed upon him in terrified amazement.

The draught appeared to be so much to the goblin's satisfaction, that he immediately ordered similar refreshment for the sexton, and upon his refusal to drink on the ground that he is not cold, orders his satellites to pour it down his throat. "What," said he, "not cold? No, don't you think it, quickly to his lips I say and make him drink it." A small imp on Gabriel's shoulders then drew back his head, and another hovering in the air poured the red hot liquid down his throat, and as the glowing liquid ran down, his whole body glowed until he was the colour of white hot iron. This is a startling and original effect, and is worked in the following manner:—

The main picture represents the cave and goblins, the king being in the centre and Gabriel standing on the right-hand side; he has, however, no head, this being thrown on by another lantern, completing the picture.

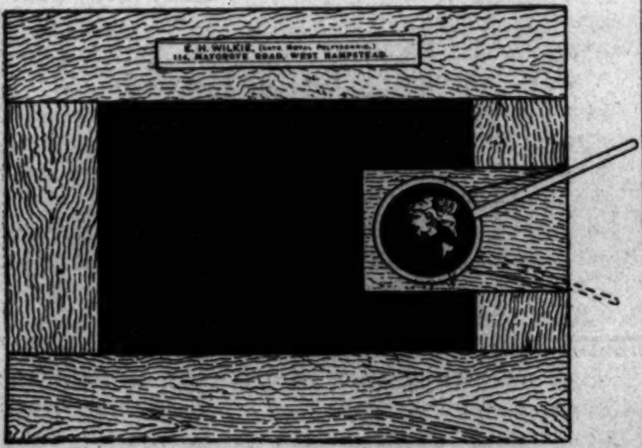

E. H. WILKIE, (LATE ROYAL POLYTECHNIC.)
114, MAYGROVE ROAD, WEST HAMPSTEAD.

Fig. XVII.

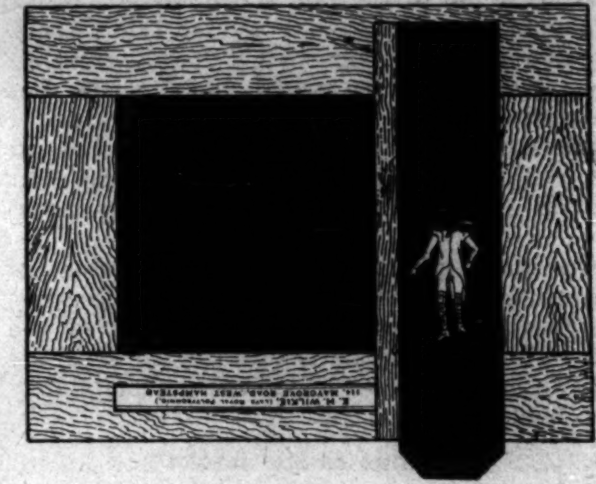


Fig. XVIII.

It will be seen from Fig. XVII. that a small lever slide was fastened to the side of the main frame, and upon the moving portion of this the head of the sexton, together with the small imp was painted, and when the time came to pour the red hot liquid down the throat of the unfortunate man the lever was pushed down, causing the head to tilt backwards, and bringing the mouth into position for receiving the molten stream. The liquid fire was seen to leave the vessel held by the flying goblin by means of a separate rack frame, and as it descended into Gabriel Grubb's innermost recesses, the slip was gradually drawn upwards disclosing the glow.

This, which we represent in the diagram Fig. XVIII., was a figure of the sexton painted to register exactly with that in the picture, but coloured entirely in various shades of orange. When put into the lantern the figure was hidden by the moving slip of glass, which was blacked out a sufficient distance to hide it, and the edge of the black being softened, its passage over the figure was not very distinctly marked, but gave to the glow the appearance of spreading gradually downwards. It will be seen by closely following the foregoing description that no less than four lanterns were needed at one time to produce the effect, but although troublesome it was realistic, and never failed to provoke enthusiastic applause.

As a general rule the illustration of these entertainments founded on legends presented a broader field and greater opportunities to the artist and mechanician than "lectures" pure and simple, the scope for effects being very much narrowed when photographs from Nature only form the basis of the pictures; but even then the ingenious specialist can introduce effects that would be undreamed of by the inexperienced exhibitor, and in the hands of one who has made lantern effects a speciality and life-long study, there are few subjects which could not be so treated as to yield results which would be simply a revelation to both the exhibitor and the spectators.

The designing of effects is more than a business, it is an art, and requires taste, general knowledge, artistic perception, and mechanical ability in a degree which would meet with a much higher reward in almost any other walk in life.

The class of effects we have recently been discussing may be termed "entertainment" in contradistinction to "lecture," and have mostly been grouped round some of the old familiar tales such as Cinderella, the Sleeping Beauty, or Robinson Crusoe, and in the latter story many fine mechanical seascapes have from time to time been produced.

The sea has afforded material in all ages to painters and poets; its many moods possess for us a fascination which stirs the heart of even the most inveterate landsmen. Its grandeur and beauty, its terror and majesty, can be well represented through the medium of the lantern, for here we have an opportunity of presenting the mighty ocean not only under peaceful aspects, but by mechanical contrivances she may be seen when her surface is agitated by the mighty force of the winds, her waters churned into foam and the crests of her waves converted into drifting spray.

There are two well-known methods of imitating the rising and falling of the waves, either by the rackwork eccentric such as we illustrated at Fig. X., and which consists of two plates of glass in brass frames passing to and fro over each other with a circular motion and actuated by a handle; and the old fashioned eccentric such as we see at Fig. XIX.

To render the diagram as clear as possible we have in this illustration simply represented the motion without the painting, to avoid confusing the lines of our drawing.

It will be seen that it consists of a frame holding a circular plate of glass upon which is painted the sky, the horizon, and a small portion of the distant water, the lower part of the glass being left quite transparent, the larger waves which should occupy the middle distance and foreground being painted upon the two moving glasses, as would be the ship should it be desired to represent a vessel in a storm. In the case of a lighthouse in a storm forming the subject, the rock and building would naturally be drawn on the fixed glass together with the sky.

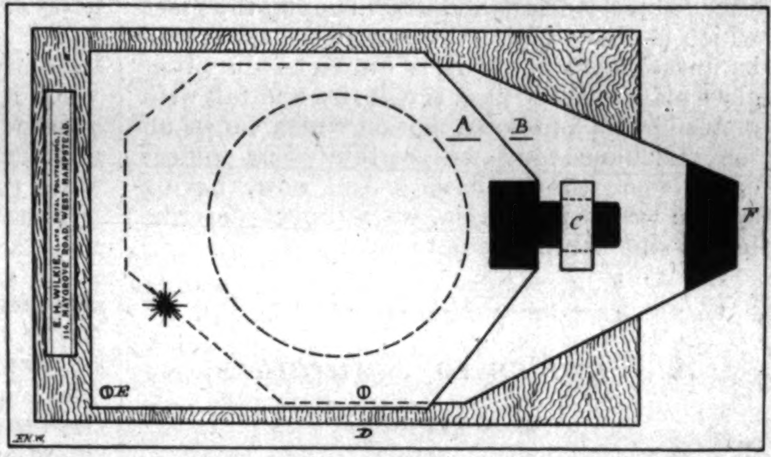

E. H. WILKIE, (LATE ROYAL POLYTECHNIC.)
114, MAYGROVE ROAD, WEST HAMPSTEAD.
A
B
C
F
E
D
ENW

Fig. XIX.

Now let us consider how this movement acts. The moving parts are two, marked in our diagram A and B, A moving upon a screw at E and B moving upon a fixed point at D. At the right-hand end of A will be seen a tongue of black cardboard which passes loosely through C, which is another piece of card fastened to B, but having a thin slip of wood under each end (as shown by the dotted lines), forming a kind of arch or bridge in which the black tongue works. Near the left side of our glasses is marked a star on each glass, one beneath the other, to enable us to follow the movements when the slide is put in motion.

When the handle F is raised the star on A is raised also, as it is pivoted at E, and the two glasses are loosely secured one to the other at C; but the plate B being pivoted at D the star upon that will move in a contrary direction downwards, thus giving a cross motion. It is apparent that this cross motion is at its greatest on the left-hand side of the slide and at its least near to the handle, and by taking advantage of this difference and drawing his waves accordingly the experienced painter can produce stormy sea effects by this means, which would not be so effective by the ordinary rack motions; but please to bear in mind this is only in the case of decidedly stormy weather.

A word of warning must be given to any lanternist who possesses a knowledge of painting and desires to construct such a slide for his own use: If you desire to introduce a ship into your subject be sure and draw it upon the glass which is pivoted at D, otherwise the effect will be unsatisfactory. If it is drawn on the other glass plate rivetted at E, it will rise and fall with a straight up and down motion which verges on the ridiculous, and will certainly not reflect credit upon the exhibitor. And now, having set the waves in motion, we will next describe how a ship can be made to sink.

A Word as to Saturators.

By **SATYROS.**

THERE is no doubt that many lantern operators who would gladly adopt saturators on account of their convenience in various respects, have been deterred from their use by apprehensions of danger, especially since the Charity Bazaar disaster and several minor mishaps. But a greater number probably hesitate to adopt them on account of real or supposed uncertainty in their action and the complex factors in their working, not to mention the diversity of opinions even among their advocates, and above all the general lack of firm guiding principles and data in their use.

For instance, while a French authority maintains that gasoline (much employed in Paris for saturators) is vastly superior to ether, and leaves no useless residue in the saturator, an English champion of saturators, while admitting gasoline to be more satisfactory than ether, declares that it leaves a greater proportion of residue.

The writer of the present lines has found it quite possible to work with benzine, sold as containing 650 grammes to the litre (*i.e.*, 1,000 c.c.), and marking 740 degrees on an ordinary French densimeter; the saturator being at least a yard from the jet, the ambient temperature about 70 degrees Fahr., the disc about 9 feet in diameter at approximately 7 yards distance, and the slides rather dense, and with slight pressure on the oxygen. German ether marking about 765 degrees on the densimeter is, however, preferable with the same pressure.

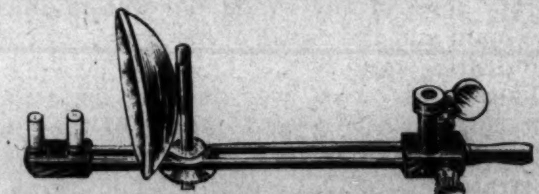
We hear little said about the packing or stuffing of saturators. It would seem rational, however, that the degree of compression of the material, whatever it be, and woollen fabrics seem a general favourite for this purpose, should be proportioned to the pressure of the gas and the volatility of the hydrocarbon for which it acts as a sort of capillary reservoir. If the packing is too loose the gas passes through in a blast, drawing with it too little of the vapour; while if the receptacle is too tightly stuffed the passage of the gas is more or less obstructed, and the weak flame at the jet is overwhelmed when the pure oxygen is turned into it.

The practical points to which the above brief remarks are intended to lead is the need of some guiding principles and data as to the selection of the saturator, and also especially as to the kind and quality of the hydrocarbon to be used relatively with the amount of illumination required. In a word, some more scientific base to work on than empirically following the directions of dealers, which however practically useful as they generally are, would be still more so and inspire greater confidence if understood theoretically.

NEW APPARATUS.

THE "BROWN" ACETYLENE JET.

When using two or more burners on one tube with acetylene gas, it is by no means an uncommon occurrence for one of them to smoke; this calls for regulation of the pressure at that particular burner, but when one tap controls more burners than one, each cannot be individually adjusted. To overcome this inconvenience, Mr. F. Brown, of 13, Gate Street, London, W.C., has introduced the jet of which we give an illustration, from which it will be seen that the burners are supplied from different tubes each fitted with a screw tap, which permits of each burner being under separate control.



ALADDIN'S LANTERN LAMP.

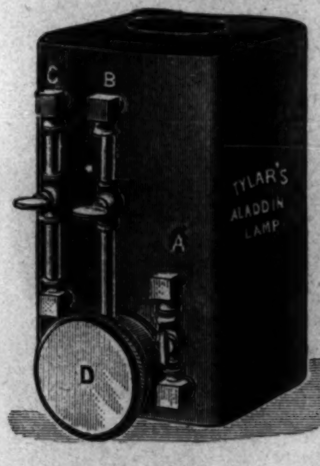
Mr. William Tylar, of Birmingham, has now re-introduced the form of lamp (termed Aladdin's lantern lamp) to which we devoted considerable space in our issue for last June, page 87, in which article we gave the actual results of certain experiments conducted by ourselves with this lamp. The internal arrangements have since that time been slightly re-adjusted with improvement. The instructions sent out with each lamp are very simple and are as follows:—

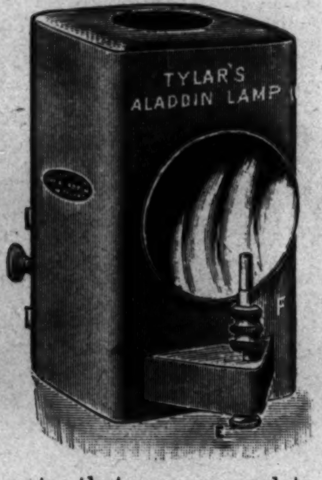
Unscrew the generating cap D and open the tap B, the other taps being closed, then pour water into the hole on the top of lamp until the lower chamber is full, and there is about a ¼ of an inch deep in the upper chamber. Then take out the drawer from the generator and insert the carbide required (about 5½ ozs. for two hours' light) and replace, screwing the generator cap up tight then; open the tap A—gas will be immediately generated—and displace the water in the lower chamber, forcing the same up into the upper chamber when this has been done. Turn off tap A.

Turn on tap C and apply a light to the burner, which is regulated by the tap C; do not let the light flare unless it is absolutely necessary to do so to get rid of an over supply of gas. There is nothing to fear.

Tap A should now be partly opened, and attention given to same, as too great a water supply causes too much gas to be generated.

To empty water from the lamp when putting away, unscrew plug E.





Unscrew F to release any water that may accumulate in the triangular chamber.

To regulate the height of burner turn the two milled screws below the burner up or down, and regulate the reflector so that the flame is central with the reflector and condenser.

To get even illumination the lamp can be moved backwards or forwards in lantern until the best light is obtained on the screen, and an evenly illuminated disc is obtained.

When the lamp is used and done with it is best to empty the generating chamber outside; good refuse for gardens.

NOTES.

As gas is generated quickly, attention should be given to tap B, and turn off if necessary, to prevent the water being forced too high by the gas into the upper chamber; turn on gradually after being shut off.

Do not adjust the burner when the lamp is lighted, or gas being given off, and when once adjusted there is no need to touch it again for use in the same lantern. Fasten the milled screw up tightly against the burner holder in order to make a good joint. Never hold a light too near the generating chamber when taking off the cap.

Screwed plugs E and F should also be fastened securely so as to prevent any leakage of gas and consequently smell.

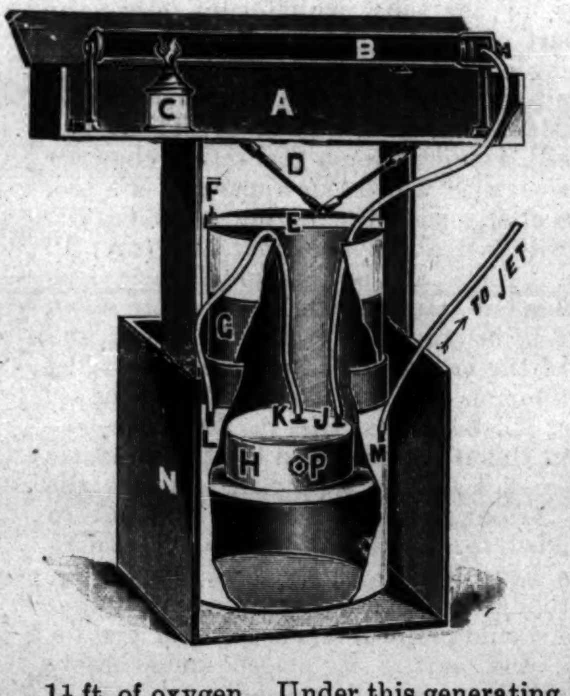
We think these instructions err in respect to the amount of calcium carbide which should form a charge, for as is well known by users of the acetylene light, the carbide after it has been wetted and is exhausted occupies very much more space than when dry, hence, when 5½ ounces are placed in the drawer it will afterwards be found to be packed tightly with the residue, and this lime residue is very apt to clog up the small openings in the tube, which runs along the upper part of the generating chamber D, thus preventing all access of water, with the result that the apparatus of course refuses to work. We consider that a charge of carbide should not exceed 4 ounces for a generating chamber of the size with which this apparatus is fitted, and this charge with the burner supplied, viz. 00000, will last about one hour and (say) 10 minutes. Like all self-contained acetylene lamps, this one cannot be left entirely to itself, for there is bound to be a certain ebbing and flowing of the brilliancy of the flame, according to the amount of water weight in the upper chamber; when there is little, the flame becomes small, but this is soon rectified by the automatic admission of a further supply of water to the carbide. Other minor adjustments have also to be attended to. When the lamp is burning well, the light is exceedingly good, but, for our part, although the lamp is very compact and neat, we should prefer it being made of greater capacity, and having it placed immediately behind the lantern, with a leading tube to a stand burner in the lantern. On the other hand many persons may consider it an advantage to be able to place the whole affair in the lantern, as is intended with the apparatus mentioned. No doubt, as this style of lantern illuminant gets further popularised, Mr. Tylar may also introduce one of slightly larger make for use immediately behind the lantern.

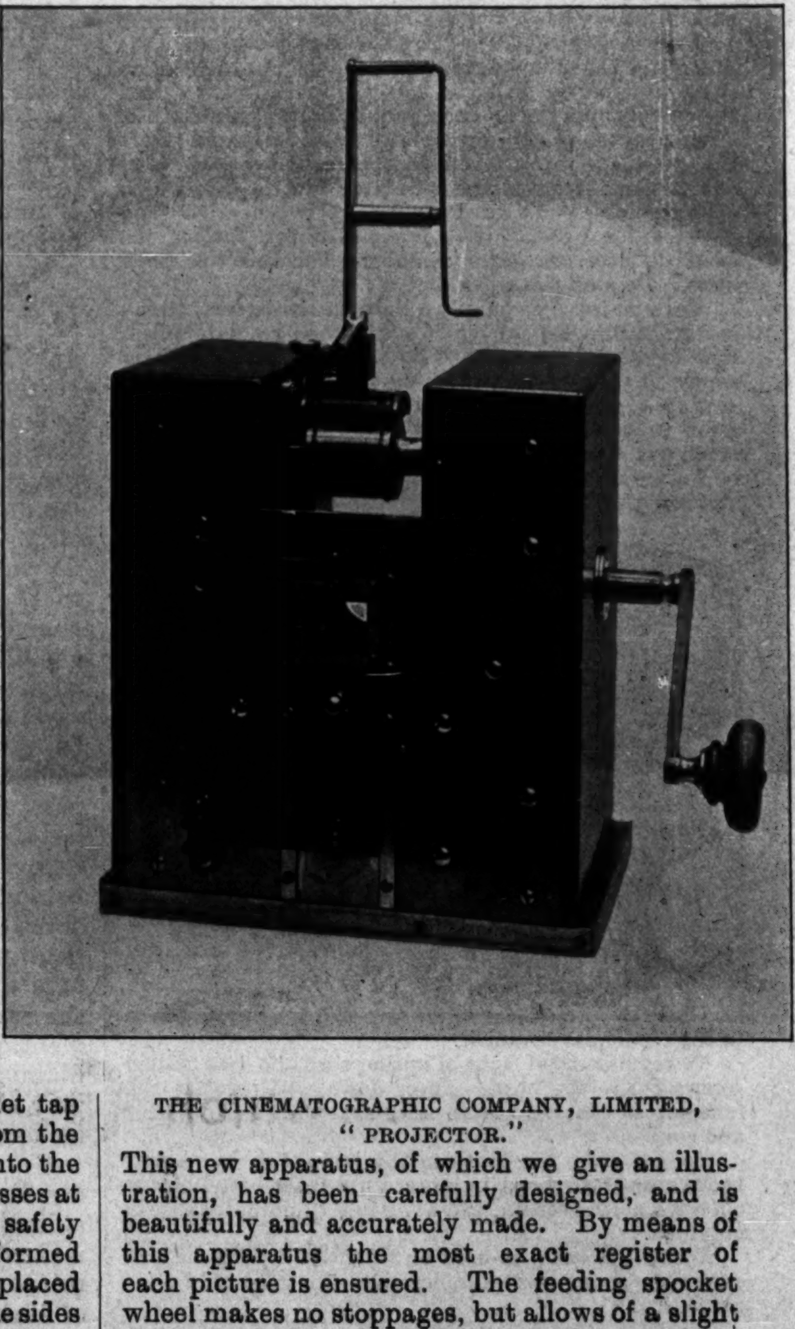
RELIGIOUS SLIDES.

Mr. F. N. Eaton, of 1, Higher Lane, Aintree, who is issuing some excellent sets of Biblical slides, makes a practice of sending with his lists silver prints from the negatives, so that one desirous of hiring or purchasing may be enabled to see the class, style and details of each picture before purchasing.

THE RILFORD OXYGEN GENERATOR.

Messrs. Riley Brothers, Limited, have placed an automatic oxygen generator (termed the "Rilford") upon the market. It is strongly made and simple in construction, yet very effective, with a single jet or saturator. With this apparatus oxygen can be generated and a supply maintained for any period desired. On reference to the illustration, the principle of working will be readily understood:—A is an upper carrying case provided with folding standards, upon which the generating tube B is supported. Into this tube a supply of oxygen generating cartridges (which are placed into a separate receptacle) are inserted, there being capacity for eight cartridges, each capable of yielding about 1¼ ft. of oxygen. Under this generating tube is a spirit lamp C, which is moved by the double lever D, sliding on the bar E as the gasometer rises and falls. The lamp is lighted and in about 8 or 9 minutes oxygen is generated; this passes into the purifier H by means of the tube shown which connects with the inlet tap J, containing a back pressure valve. From the purifier, the gas passes *via* the outlet K into the gasometer or container at L, whence it passes at the tube M to the saturator or jet. A safety valve is provided at F. The container is formed after the style of nesting two tanks, both placed mouth upwards, they being connected at the sides by a rubber cloth, G, in such a manner that the inner tank may be allowed to rise or fall within the lower. We were lately present when this apparatus was in use, and found that it worked with great ease and certainty, and should have a good future before it, especially as there is a certain amount of difficulty in getting cylinders of compressed gas conveyed. An automatic oxygen producing apparatus will probably, in the near future, become a *sine quâ non* with lanternists where gas cylinders cannot readily be procured.



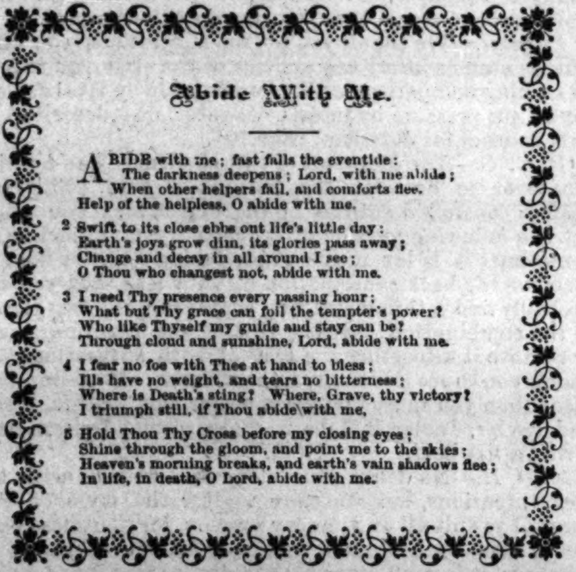


THE CINEMATOGRAPHIC COMPANY, LIMITED, "PROJECTOR."

This new apparatus, of which we give an illustration, has been carefully designed, and is beautifully and accurately made. By means of this apparatus the most exact register of each picture is ensured. The feeding spocket wheel makes no stoppages, but allows of a slight slackness in the film, which is taken up by a pin movement, working in a very ingenious manner, by means of a specially devised double form of cam. The pins of the feeding mechanism enter and leave the film at the period when it is absolutely at rest, so that no damage whatever can occur to a film, no matter how often it may be run through the machine. An adjusting mask, which also carries the lens, permits of various makes of films being used and adjusted. We have been permitted to visit the factory of this firm, and were astonished at the completeness of the works, there being amongst other apparatus turret-headed lathes, whereby certain parts are quickly turned out with great precision.

FLEXIBLE HYMN SLIDES.

Sets of hymn slides on celluloid are being dealt in by Messrs. Butcher and Sons, of Blackheath. These will be found very convenient as the whole series issued (36), which are sold in boxes of twelves for 2s., take up very little room. When a slide is to be exhibited it is slipped between the two hinged glasses of the carrier to be found in each box. This serves to keep the film perfectly flat. Each slide is surrounded by an ornamental design, as shown in the illustration.



Abide With Me.

ABIDE with me; fast falls the eventide:
The darkness deepens; Lord, with me abide;
When other helpers fail, and comforts flee.
Help of the helpless, O abide with me.

2 Swift to its close ebbs out life's little day:
Earth's joys grow dim, its glories pass away;
Change and decay in all around I see;
O Thou who changest not, abide with me.

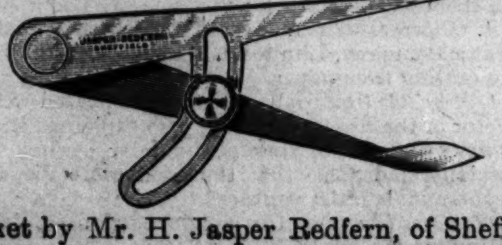
3 I need Thy presence every passing hour;
What but Thy grace can foil the tempter's power?
Who like Thyself my guide and stay can be?
Through cloud and sunshine, Lord, abide with me.

4 I fear no foe with Thee at hand to bless;
Ills have no weight, and tears no bitterness;
Where is Death's sting? Where, Grave, thy victory?
I triumph still, if Thou abide with me,

5 Hold Thou Thy Cross before my closing eyes;
Shine through the gloom, and point me to the skies;
Heaven's morning breaks, and earth's vain shadows flee;
In life, in death, O Lord, abide with me.

MASK AND MOUNT CUTTER.

A new mount and mask cutter, shaped as per illustration, has been devised and placed on the market by Mr. H. Jasper Redfern, of Sheffield. With the aid of this compass-like cutter it is by no means a difficult matter to cut out a variety of designs or shapes. After one or two trials the user will be enabled to cut out almost any shape that can be drawn with a pair of compasses.



PANAK.

Panak is a new sensitising solution, which is being manufactured by Messrs. Marion and Company, of Soho Square. A small brush is dipped into the solution, and by means of this a coating of the solution is given to a card or other suitable surface, after which the coated card is placed in the dark for about 20 minutes to dry, when it may be placed behind a negative in a printing frame in the usual way, set in bright light and allowed to print until it appears a little darker than the finished picture is required to be. After the printing is completed, the card, or that portion of it upon which the printing has been done, is washed in water for three minutes; it is then placed for one minute in a hpyo solution, composed of hypo, 2 ounces to the pint of water, to which a few drops of ammonia should be added. After a final washing of three minutes the print is complete and should be allowed to dry spontaneously. The finished prints possess a pleasing sepia tone with good detail. By means of this quick process one is enabled to print his own Xmas cards, birthday cards, etc. The solution is sold in 2s. 6d. bottles, together with a suitable brush for coating.

:o:

PATENT INTELLIGENCE.

The following List, relating to current Patent Applications, is compiled expressly for the "Optical Magic Lantern Journal" by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No.	Recent Patent Applications.
23933.	14th November, 1898. James Pollard Lea and John Edward Thornton. Improvements in producing animated or moving pictures.
23934.	14th November, 1898. James Pollard Lea. Improvements in and connected with apparatus for producing moving pictures.
23940.	14th November, 1898. Charles Anthony Burghardt. Improvements in the method of and means for producing photographic pictures. Complete.
24141.	16th November, 1898. Thomas Henry Collingbourne. Improvements in acetylene gas lamps.
24290.	17th November, 1898. Richard Simonau. Improvements in cinematographic apparatus.

24458. 19th November, 1893. Charles Henry Worsnop. An improvement in acetylene gas lamps.

24493. 21st November, 1898. John Henry Exley. Improvements in apparatus for the generation and storing of acetylene gas.

24670. 22nd November, 1898. George Wilhelm Lyth. Improvements in lamps or lanterns for burning petroleum and the like.

24735. 23rd November, 1898. George Barrow. Improvements in apparatus for the exhibition of animated pictures. Complete.

24842. 24th November, 1898. John Rose. Improved apparatus for displaying stereoscopic transparencies.

24912. 25th November, 1898. Charles Steele Bradford. Improvements in and pertaining to lamps, gas and electric fittings, and the like.

24923. 25th November, 1898. Harry Lane. Improvements in oil lamps.

24946. 25th November, 1898. James Grieve Lorrain. Improvements in optical projection apparatus.

24994. 26th November, 1898. Walter Mallet, William Watson, Charles Willis Beevor, and Arthur Lewis Adams. Improvements in optical appliances applicable as a view finder or for other purposes.

24995. 26th November, 1898. Edwin Ellsworth Crook and Miles Augustus Hunting. Improvements in hydrocarbon burners. Complete.

25075. 28th November, 1898. Gustav Huebner. Improvements in reflectors for lamps and lanterns. (August Müller, Austria-Hungary.)

25110. 29th November, 1898. William Elliott Debenham. Improvements in lenses for bifocal spectacles.

25227. 30th November, 1898. David Thubron. Improvements in portable and other lamps and generators for acetylene gas.

25291. 30th November, 1898. Nicolas Alphonse Aubertin. Improvement in acetylene gas apparatus and lamps.

25492. 2nd December, 1898. Herbert John Haddan. Improved means for opening and closing acetylene and other lanterns. (Albert Frank, Germany.)

25493. 2nd December, 1898. Improvements in devices for regulating the gas generated in acetylene and like lamps. (Albert Frank, Germany.)

25557. 3rd December, 1898. Charles Leopold Kettridge. Improvements in or relating to lamps.

25718. 6th December, 1898. Charles Swiers Lumley. The chromostereoscope and instrument for showing photographs in their natural colours.

25924. 8th December, 1898. Thomas Walter Barber. Improvements in optical apparatus for photographing and projecting moving objects.

25945. 8th December, 1898. Harold Cheetham Hill. Improvements in acetylene gas generators and lamps.

26085. 9th December, 1898. Charles Raleigh. Improvements in connection with the exhibition of moving pictures or working models accompanied by appropriate sounds.

BOUND VOLUMES FOR 1898.

We are requested by the publishers of this Journal to state that Bound Volumes are now ready, price 3s., post free 3s. 4d. Binding cases 1s., post free 1s. 3d.

Notes and Queries.

B. S. T. and others.—You will find our remarks under the heading of New Apparatus.

John Clare & Company (*Auckland*).—We duly advised Messrs. Kirkpatrick, Barr & Gutherie upon the apparatus you require, and understand they are seeing to the matter.

L. Billingham.—Both Messrs. York & Son and Mr. J. Bamforth make a speciality of life model slides.

Oxygen.—A correspondent using this *nom de plume* asks us to insert the following query in our column:—"Will any correspondent who has had experience with the Stedman-Brown oxygen generator, say whether the light is as brilliant and steady as when the gas is taken from a cylinder under pressure? I use a blow-through jet."

F. Mascall.—Some aniline dyes dissolve best in water, whilst for others alcohol is preferable. You speak of some of the dyes having solid looking particles, although you have kept them in dissolved form in stoppered bottles for some months. This we believe is a characteristic of many of the dyes, and we know of no remedy. Why not dissolve a small quantity shortly before using?

Progress.—We thank you for the suggestions you offer, but we cannot insert any articles of the style you suggest of making comparison of the goods made by rival dealers. Extra gas pressure by means of water was described in this Journal for July last, page 104.

R. E. C.—The diameter of the condenser has nothing whatever to do with the flatness of field. This is a matter controlled entirely by the objective. You might try the following method of adjusting your objective, as sometimes it is the means of producing a flatter field:—Remove the back combination of your lens, and you will probably find a thin metal ring separating the two glasses of the combination. Replace this by one much narrower, or remove it altogether; a trial of both suggestions will enable you to see if it is any improvement. If no improvement then you must just get a better lens. Swift, Wray, and Taylor, Taylor & Hobson, make special lantern lens giving a flat field.

M. D. H.—No doubt your letter was written with the best intentions, but we cannot alter the style of this Journal to suit all and sundry readers, for doubtless each would like to have his own suggestions carried out. However, it is well known that those who have never tried to conduct a paper think they could add great improvements to the existing state of things. We prefer running it on our own lines, but, however, thank you for your letter.

George Sampson.—Perhaps some of our readers who see this will be able to supply the information as to where you can obtain slides of Afghanistan and also a slide of an Indian bullock drawing water from a well.

A. Freeman.—Particulars of how to make a binocular lanternescope will be found in this Journal for April, 1892. Since our account appeared, several firms have placed them on the market.

E. A. Colborne.—The address of the British Acetylene Generator Company, Limited, is Kirkcaldy, N.B. Thanks for the cutting from paper.

R. A. Reynolds (*Ontario*).—We communicated with the proprietor of the firm mentioned, who explained that the delay was owing to an item of the order having had to be specially made, also that the goods were dispatched about the middle of December.

Photogeorgos (*Spain*).—Use single condenser, flat side next illuminant.